

# Advanced Energy Storage Systems (AESS)

Completed Technology Project (2014 - 2017)



## Project Introduction

Develop and demonstrate advanced Energy Storage System (AESS) technologies that meet NASA's space exploration needs for safe, abundant, reliable, and lightweight energy storage through the development of high specific energy storage systems such as compact, lightweight battery packs and through the development of very high specific energy devices with specific energies beyond that possible with Li-ion chemistries.

## Anticipated Benefits

Light weight, compact portable life support systems Lighter, more compact energy storage systems Power through eclipse periods

## Primary U.S. Work Locations and Key Partners



Advanced Energy Storage Systems

## Table of Contents

Project Introduction	1
Anticipated Benefits	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Transitions	2
Project Management	2
Technology Maturity (TRL)	2
Target Destinations	2
Project Website:	3

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Glenn Research Center (GRC)

### Responsible Program:

Game Changing Development

## Advanced Energy Storage Systems (AESS)

Completed Technology Project (2014 - 2017)



Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Amprius, Inc.	Supporting Organization	Industry	
● Exploration Capabilities	Supporting Organization	NASA Program	
Indiana University-Purdue University-Indianapolis	Supporting Organization	Academia	Indianapolis, Indiana
University of Maryland-College Park(UMCP)	Supporting Organization	Academia Asian American Native American Pacific Islander (AANAPISI)	College Park, Maryland

## Primary U.S. Work Locations

California	Ohio
Texas	

## Project Transitions

▶ **October 2014:** Project Start

✓ **December 2017:** Closed out

**Closeout Summary:** The Advanced Energy Storage Systems Project developed high-energy density electrochemical cells that will reduce volume and mass requirements for battery powered systems. The technology focused on new processing methods and material systems that demonstrated good potential to provide specified system level energy requirements without sacrificing safety and reliability. Packing and battery safety concerns were mitigated through the use of safer electrolyte, cathode, and electrode material combinations that were known to be less susceptible to thermal runaway and fire.

## Project Management

**Program Director:**

Mary J Werkheiser

**Program Manager:**

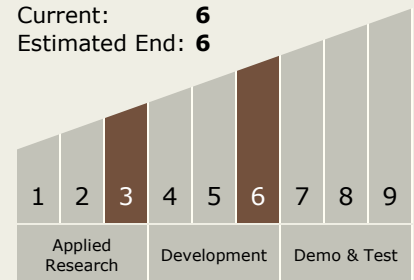
Gary F Meyering

**Principal Investigator:**

Donald T Palac

## Technology Maturity (TRL)

Start: **3**  
 Current: **6**  
 Estimated End: **6**



## Target Destinations

The Moon, Foundational Knowledge

## Advanced Energy Storage Systems (AESS)

Completed Technology Project (2014 - 2017)



**Project Website:**

<https://www.nasa.gov/directorates/spacetech/home/index.html>